Building the case for embedding global health security into universal health coverage: a proposal for a unified health system that includes public health

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In the wake of the recent west African Ebola epidemic, there is global consensus on the need for strong health systems; however, agreement is less apparent on effective mechanisms for establishing and maintaining these systems, particularly in resource-constrained settings and in the presence of multiple and sustained stresses (eg, conflict, famine, climate change, and globalisation). The construction of the International Health Regulations (2005) guidelines and the WHO health systems framework, has resulted in the separation of public health functions and health-care services, which are interdependent in actuality and must be integrated to ensure a continuous, unbroken national health system. By analysing efforts to strengthen health systems towards attaining universal health coverage and investments to improve global health security, we examine areas of overlap and offer recommendations for construction of a unified national health system that includes public health. One way towards achieving universal health coverage is to broaden the definition of a health system.

Introduction

Following the Ebola outbreak in west Africa in 2013–16, several calls have been made for the strengthening of national health systems to prevent health system failures during public health emergencies.[1–4] Kluge and colleagues[5] provide an important demonstration of the need for strengthening of global health security by embedding International Health Regulations (IHR) core capacities into the functions of national health systems. The authors highlight the importance of resilient health systems for achieving the IHR (2005), and conclude with a call for more strategic investments towards resilient national health systems.[5] Similarly, WHO Director General Tedros Ghebreyesus wrote, "it is possible for all countries to achieve universal health coverage (UHC), including key public health interventions".[6] Both perspectives imply an expectation that global health security (GHS), as a result of achieving IHR core capacities and well functioning population-health services, should be an inherent part of the health system and, therefore, UHC. Both perspectives also highlight the tensions in trying to integrate distinct and separate systems that, in practice, result in distinct outcomes.

Although a 2015 Public Policy paper in *The Lancet*[3] reframed the concept of biosecurity from international epidemics and pandemic threats to fortification of both collective and individual health security through strong national public health capacities, GHS traditionally emphasises the role of health system capacities and technical areas in the prevention, detection, and response to emerging and re-emerging infections. Health system strengthening, on the other hand, is often conceptualised in the six building blocks of the WHO health system framework. To achieve the Sustainable Development Goals, and global confidence in what is needed for UHC, examination of existing health system policies is necessary as well as interrogation of the assumption that UHC, as it is currently defined, meaningfully incorporates GHS and prevention-focused interventions—in addition to the current primary focus on health services and access.

In this Health Policy paper, we review aspects of the health system as conceptualised in the GHS and UHC frameworks and explores the potential effects of current global policies and international funding on the ability of health systems in low-income countries (LICs) to serve and protect their citizens. We do this by first analysing the two concepts of UHC and GHS; second, we explore areas of potential coordination and outline specific components of a robust public health-integrated health system; third, we propose how to invest in and ensure sustainable national health systems; and fourth, we conclude by providing concrete recommendations for the next steps toward a unified health system. This Health Policy paper synthesises expert opinions from the Consultative Meeting on Public Health Solutions in a Post-Ebola World, held on July 12, 2017, in London, UK, evidence from scientific literature, policy analysis, and international discussions, and offers recommendations for global health policy and strategy development for a unified health system.

The two systems for UHC and GHS

Building on the successful effort against smallpox, in the 1950s and 60s, vertical disease control was the dominant policy in LICs and was advanced by international development aid. In 1978, the Alma-Ata Declaration introduced a horizontal health approach that we now know as primary health care. This new concept promoted comprehensive care, which challenged disease-specific solutions supported by bilateral initiatives, multilateral-funded programmes, and private corporation commodity and drug profits.[7] Thus, a new distinction between clinical (primary care) and public health services emerged.

Closing primary care gaps, including prevention and health promotion, is the first step towards UHC progress.[8]

In practice most schemes to improve primary care access and UHC interventions focus more on personal health services and health insurance than infectious disease threats.[9–11] Additionally, because of inadequate resources for the entire health system (ie, UHC and GHS) and political pressures (both domestic and international), countries often must choose where or how to invest limited resources. For example, a country might have to choose whether to increase lab capacity or make more nurses available for consultations. During the Ebola outbreak, this choice was evidenced in all three affected countries, as more people died from untreated malaria due to reduced health-care services and overburdened systems.[12]

The WHO Health Systems Framework was developed to provide a model to capture the interlinked and complex nature of health systems.[13] The building blocks (ie, service delivery, health workforce, information, and medical products, vaccines, and technologies, as well as financing, leadership, and governance) approach to strengthening health systems is the means to achieve the UHC policy goal outlined in the 2010 WHO report.[14] Although Kluge and colleagues[5] and others maintain that the framework reflects health system components, it is difficult to reconcile how in practice certain population-level services, including emergency preparedness (eg, surveillance, diagnostics, trust, and surge capacity) and health promotion activities (eg, screening, vaccination, and anti-smoking campaigns), are covered within these building blocks. The analysis by Kluge and colleagues[5] poses more questions and, although they emphasise that the two policies reinforce each other, they offer few details on the entirely different areas they occupy, which include different funders, actors, activities, and priorities.

The WHO framework for strengthening public health capacity, or the IHR, was established to boost global commitment to reducing the likelihood of outbreaks and reinforcing national health system functions that prevent, detect, and rapidly respond to public health risks and emergencies of international concern.[15] The assumption of this framework is that through eight core capacities (national legislation, policy and financing, coordination and National Focal Point communications, surveillance, response, preparedness, risk communication, human resources, and laboratory[16]) outbreaks can be prevented or detected in their early stages, thereby reinforcing GHS. However, the conspicuous absence in the IHR of curative services, patient management, and clinical surge capacity during outbreaks means it does not address treatment of patients up to recovery and effective containment and resolution of outbreaks and epidemics.

There is a need to go further than Kluge and colleagues'[5] proposal to review cross-cutting activities and areas of coordination between the two frameworks, and to completely dissect and reassemble what we call a health system, to address and repair current system failures that can affect both individual and population health.

Towards one complementary system

To improve integration of GHS and health systems objectives within UHC, areas of coordination as well as challenges, which have resulted in national health systems created in the wake of the division of UHC and GHS, must be highlighted. A more inclusive, unified health system would perhaps start to break down this division, including the underfinancing and separation of community health services. We argue that attaining UHC, with the explicit inclusion of population-level health services and emergency preparedness and response functions, will be the best way to contruct this proposed inclusive health system.

Whether these systems are two ends of one continuum or two distinct systems remains unclear, possibly due to the differing focus of stakeholders involved in personal health services and population-level health. The UHC lexicon (eg, service quality, patient-care, provider, and out-of-pocket payments) is notably different from that of GHS (eg, public health surveillance, detection, and response). The fact that UHC primarily deals with universal access to quality health services and protection from financial hardship has provided WHO and other policymakers with a very clear directive in developing programmes and initiatives towards achieving these aims (ie, improve access to care and increase financial protection).

However, in both frameworks, a few common concepts exist (though not consistently defined) that are often highlighted as crucial elements of optimal implementation. One example is the concept of increasing or equipping the health worker.[17,18] The health systems building block human resources for health emphasises the national availability and capability of the entire health workforce that partakes in organisation and delivery of health services.[19] The IHR framework also targets human resource competency by focusing on strengthening the skills of public health personnel explicitly for sustaining public health surveillance and response.[20] A thoughtful delineation of the inputs of these approaches, followed by selection of essential components for one definition, could provide useful instruction on how to strengthen and equip the health workforce to meet the needs for surge capacity during an outbreak as well as to provide quality health services for daily health care.

Creating robust and sustainable national health systems

Formulation of a broader, more comprehensive, and thus more secure national health system under UHC would protect and serve the health needs of a population. This national health system must, by design, have several levels of implementation (ie, from community to national administrative levels) and must be multisectoral. Partnerships and systems must understand shared risks and vulnerabilities, and ultimately have

shared actions to respond to health events early, and be effective in stopping outbreaks, managing patients affected by outbreaks, and continuing to offer routine curative services to those in need. Countries must first build better internal collaborations within the health sector, starting with a more informed exchange between disease surveillance and disease-specific programmes. Multisectoral coordination through the One Health approach should be used in cases of suspected zoonotic disease outbreaks. Countries and their development partners must develop plans for the care of people with endemic infectious diseases and chronic communicable or non-communicable diseases during outbreaks and epidemics.[21,22]

Though a thoughtful and proactive approach to building and financing unified health systems between development partners and LICs is required, it is not the norm. The US National Academy of Medicine estimated that if global investments were directed in building systems that prevent outbreaks, the global economy could save 13 times more than what was spent to respond to emergencies in just one year,[23] yet core and long-term investments to build and maintain health systems in poor countries remain inadequate. Although LICs need to raise domestic funding to (a minimum of) 5% of gross domestic product,[24] several analyses[25–27] have shown that, to achieve UHC, overseas development aid is still necessary to fill the gap between government spending on health and the estimated minimum target spend of US$86 per capita per year. To sustain this newly proposed model for one national, public health-integrated health system, new funding strategies must be developed that include changes to local and international commitments. Donors must establish stable funding and core investments in accessible and robust health systems. Several nascent government overseas development aid programmes exist that include targeted investments to connect UHC and GHS, including the Tackling Deadly Diseases in Africa Programme from UK's Department for International Development, the Infectious Disease Detection and Surveillance project from the US Agency for International Development, the Public Health England IHR Strengthening Project, and the Fleming Fund program for antimicrobial resistance. The effects of these initiatives on health system-related outcomes must be monitored and measured against standardised indicators.

Furthermore, the process of unifying GHS and UHC and reforming the national health system could and should be driven by countries if they and their ministries of health can provide a health system development plan that gives due attention to health security. A plan that details how prevention, preparedness, and promotion activities could be incorporated to support health care delivery ought to be very difficult to bypass, even for donors who are primarily interested in health security. An example of country-led reform could be observed when reviewing how Ethiopia implemented a rapid scale-up of antiretroviral therapy in 2006. Adding HIV prevention activities (including a ten times increase in counselling and testing services) improved antiretroviral therapy coverage indicators and HIV knowledge in the population, improved diagnosis and treatment of tuberculosis, and increased childhood immunisation coverage, in addition to other system wide-effects. These positive health system effects were mostly attributed to task shifting prevention activities from physicians to health officers and health extension workers.[28] A similar health system advantage was found when Rwanda integrated HIV clinical services into their primary health care system. In this case, significant positive increases across preventive services (eg, reproductive health) occurred with no associated reduction in other health-care delivery services.[29]

Moreover, as mentioned, LICs continue to allocate inadequate levels of domestic financing to both public heath functions and personal health services, reflecting a low political prioritisation of health.[24,30] An essential first step would be to look at health risks and resources and opportunities to unify health financing and planning from prevention to response. For example, the success of Thailand's efforts to reach universal health coverage (ie, practically 100% population coverage using three financial protection schemes)[31] has included progress in health promotion and prevention. As part of these reforms, an innovative tripartite financing mechanism has evolved to provide vital public health services. The first entity, ThaiHealth, is the predominant finance source for population-health activities and is funded by earmarked revenues from tobacco and alcohol taxes. The second, the National Health Security Office, is an independent public fund that purchases and provides service-based preventive and curative care through primary care units, is allocated 10% to 15% of the universal coverage capitation budget, and is also paid for through subdistrict insurance schemes. The third, the Ministry of Public Health, is the primary regulator and provider for public health and is funded through a fixed budget line from general taxes.[32] Although this arrangement might not be practical in every country, and was not without challenges in Thailand, it does provide a real-life and innovative model for sourcing and pooling of funds focusing on UHC curative services that also finance public health activities. Most observers of this policy formulation attribute political commitment and community involvement as the key factors to achieving this end.[33]

To guide needed investments, an in-depth risk mapping exercise should include a country-level discussion about the areas of shared risks between the ministries of human and animal health, planning, agriculture, and defence. The WHO Service Availability and Readiness Assessment (SARA) helps countries monitor the physical availability of health services and the capacity for the health sector to deliver health services. This widely used tool assists countries to annually measure the quantity

***Panel:* Recommendations for the next steps toward a unified health system**

1. We call for a new conceptualisation of a unified health system that incorporates International Health Regulations and public health functions within universal health coverage (UHC). We recommend a new, broader definition of health system within UHC, which includes more explicit references to providing population-level and preventive services, surveillance, disease detection, emergency response, and available surge capacity, as well as strong and resilient patient management for routine and endemic diseases before, during, and after outbreaks.
2. There must be a coordinated and renewed effort to strengthen the national health workforce in all countries, especially in low-income countries. Proactive measures to ensure an adequate health workforce for the future is needed and should include collaboration with ministries of education, finance, and planning to quantify population health needs and forecast future estimates for sufficient health staff. Institutions must support and reinforce policies and strategies that reduce the risk of infection for front-line health workers at all times.
3. It is time to map national risks and opportunities, to understand existing capacities, identify crucial gaps, and estimate associated costs. Assessment of risks extends to exploring models to broaden both local and global understanding of outbreak risks, using the results of mapping to create outbreak scenarios.
4. The Joint External Evaluation (JEE) and Service Availability and Readiness Assessment (SARA) should be reviewed for their utility in domestic and international health system performance appraisal for joint assessments. The JEE for global health security and SARA for strengthening of health systems could provide a truer reflection of country readiness and reactivity ability than we have now, thereby highlighting gaps and informing strategic investments and planning.
5. New funding strategies must be developed with changes to local and international commitments to sustain this new model for one national public health system. Low-income countries must raise domestic funding to 5% of gross domestic product[24] and overseas development aid should cover the gap between this amount and health financing levels compatible with attaining universal health coverage (ie, around US$86 per capita per year).[25,26] Donors must establish long-term and core investments in accessible and robust health systems that will be effective in decreasing the individual risks of daily health threats.

and distribution of human and infrastructure resources. The preferred tool to assess a country's preparedness for an international understanding of GHS is the World Health Organisation's Joint External Evaluation (JEE) and, to date, 79 assessments have been completed. This tool aims to provide transparent assessments of the progress towards achieving IHR through a collaborative process involving multiple stakeholders that assesses individual core capacities to prevent, detect, and respond to health threats. The JEE does not, however, examine health facilities for surge capacity or sustainability during outbreaks. The JEE is the starting point for an evidence-based, cross-sectoral national action plan for improving health security capacity.

The SARA and JEE are two tools with different aims which, if used together, could provide the health service and public health measures that enable a country to jointly serve and protect its population before, during, and after public health emergencies. Other tools with similar complementary emphases could provide a more comprehensive understanding of the readiness and strengths of a health system.

Conclusions

One way of achieving universal health coverage is to broaden the definition of health systems and health services. A unified health system should be able to prevent or control preventable outbreaks and epidemics while also providing affordable and accessible health services. We have provided insight on the current distinction between the IHR framework and the health system-strengthening framework. We have discussed how current global health policies and strategies sustain the inability to embrace a clear and unified health system in efforts towards a UHC that provides both individual and collective health security. We identified several places to start to redefine and reconstruct a more inclusive health system, including: (1) development of new models of overseas development aid and re-examination of means of funding that perpetuate the divided health system, (2) design of health development plans that include integration opportunities between prevention and health care delivery services, (3) development of innovative domestic finance strategies to fund public health activities, and (4) attainment of a comprehensive understanding of health system gaps by combining health security and health care delivery risk mapping and assessment tools. The remaining questions must now guide the development of strategies and policies for comprehensive investments in public health-integrated health care systems in LICs. The upcoming *Lancet* Commission on interactions between universal health coverage, health security, and health promotion will be important in reconciling and recovering the health system. This Commission will review the feasibility of certain recommendations in this Health Policy paper, especially exploring possible coordination between the JEE and SARA processes (panel).

For **Joint External Evaluation** see https://www.jeealliance.org/global-health-security-and-ihr-implementation/joint-external-evaluation-jee/

For **Assessments and JEE** see https://www.ghsagenda.org/assessments

Contributors

NAE and DLH conceived of the study. NAE drafted the original manuscript. All authors contributed content, recommended referenced

articles, and participated in the analysis of the content. NAE, JM, and DLH organised the Consultative Meeting on Public Health Solutions in a Post-Ebola World, in which some of these topics were presented and discussion points were captured and used for the analysis of certain topics within the manuscript. All authors contributed to refinement of the study protocol and approved the final manuscript.

Declaration of interests

We declare no competing interests.

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